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Summary of the Median Proposal for an Oregon Carbon Allocation Standard

December 15, 2006

At the recommendation of the Governor's Advisory Group on Global Warming, Governor Ted Kulongoski adopted a goal for Oregon to arrest the growth of greenhouse gas emissions by 2010, to reduce the greenhouse gas emissions to 10 percent below 1990 levels by 2020, and to reduce them to levels 75 percent below 1990 emissions by 2050.(see http://www.governor.oregon.gov/Gov/GNRO/global_warming_energy.shtml)

The *Oregon Strategy for Greenhouse Gas Reductions* by the Governor's Advisory Group on Global Warming (Dec. 2004) recommended in measure "GEN-2" that the "Governor create a special interim task force to examine the feasibility of, and develop a design for, a load-based allowance standard. This standard would reduce total amounts of CO_2 and other GHG emissions due to consumption of electricity, petroleum and natural gas by Oregonians in a deliberate, predictable, effective, equitable and verifiable manner. The task force should be directed to provide the Governor with its recommendation in time for legislative action, if necessary, in the 2007 session." (pp. 68-71). http://www.oregon.gov/ENERGY/GBLWRM/Strategy.shtml

This median proposal represents the position that is the position supported by a majority of the CATF members in the judgment of the CATF chair[1]. (see http://www.oregon.gov/ENERGY/GBLWRM/CATF-meetings.shtml for various staff issue papers and presentations, also for a glossary see http://www.oregon.gov/ENERGY/GBLWRM/CATF-Glossary.shtml)

This paper first describes a way to set a limit on the total carbon dioxide (CO_2) emissions associated with the use of electricity to help the state achieve its greenhouse gas reduction goals. Limiting emissions from the direct use of fossil fuels from stationary sources and non-fossil fuel CO_2 emissions from cement and lime production is discussed at the end of the paper.

Load-Based Cap on Emissions from Consumption of Electricity in Oregon
Applicability of a Carbon Cap. Setting limits on CO_2 emissions based on the use of electricity is known as a "load-based" carbon allocation standard. "Load-based" in this context means limiting the emissions of investor-owned (IOU) and consumer-owned (COU) distribution electric companies or other retail providers and significant self-generators. These are called "load serving entities" (LSE). COUs with annual CO_2 emissions lower than 15,000 metric tons (tonnes) would report their emissions, but their emissions would not be capped unless they exceeded the 15,000 tonne threshold. Small COUs may elect to opt into the cap and trade regulatory mechanism through a joint action

[1] No votes were taken. All participants reserve the right to disassociate themselves from the median position as presented by the chair.

agency. Small COUs and self-generators can buy and retire allowances and approved offsets to stay under the 15,000 tonne threshold.

Self-generation to serve loads at a single site would be included if it has capacity of 5 megawatts (MW) or more or if it emits more than 15,000 tonnes of CO_2 in any calendar year. A 5 MW natural-gas-fired facility with a heat rate of 8,000 Btu per kWh that operated 80 percent of the time would emit 14,900 tonnes per year. These conditions for self-generation assure that renewable generation above 5 MW receives allowances. Otherwise, dual-fueled facilities, e.g. biomass and natural gas, would have to burn fossil fuels for a year to receive allowances.

If emergency back-up generation has 5 to 25 MW capacity and does not exceed 500 hours of operating in any year, it would be exempt. An internal combustion generator of 25 MW with a heat rate of 12,000 Btu per kWh that operated 500 hours on distillate oil would emit about 11,000 tonnes of CO_2 per year.

<u>Base-Period Average.</u> The state would calculate a statewide baseline for the initial cap. That baseline would be historical data of CO_2 emissions and electricity use from all covered sources, using data for 2002 through 2006. The state would drop data from the years with the highest and lowest emissions for each LSE. Average emissions for the remaining years would form the basis for the distributing allowances to each LSE. The sum of the LSE baseline emissions would be the initial state cap. The first baseline for the state would probably be around 24 million tonnes of CO_2 emissions. The cap would decline over time. The 2020 limit would be 18.6 million tonnes (10 percent below 1990 levels) and the 2050 limit would be about 5 million tonnes (75 percent below 1990 levels). These limits meet the goals recommended by the Governor's Advisory Group on Global Warming (2004). Governor Kulongoski adopted the goals for the state and set them in the charge to the task force.

<u>Carbon Accounting Methodology.</u> The state would limit the CO_2 emissions that an LSE could emit. The computed emissions for each LSE would be its load (megawatt hours (MWh)) times the carbon mix of the electricity supplying that load. That would give tonnes of CO_2 emissions. Biomass has zero net emissions as the biomass would otherwise decompose and release the CO_2 within decades. Emissions for fossil fuels would be based on the carbon content of the fuel. Emissions from waste fuel would be calculated from the carbon content of fossil-derived materials

The state would use a methodology for calculating emissions that is based on the Oregon Public Utility Commission's emissions label methodology combined with the Washington Department of Community, Trade and Economic Development's methodology for firm purchases from the Bonneville Power Administration. Unspecified market purchases would be assigned the emissions rate of Northwest Power Pool generation that is not assigned to specific loads (the net system mix).

Definition of Allowances. One allowance would represent one tonne of CO_2. The state would issue serialized allowances. Each allowance would have a unique identification and year.

Distribution of Allowances. Allowances would be distributed in two ways: 1) allocated for free; and 2) auctioned. Each LSE would have a baseline equal to its base-period average emissions for the period 2002-2006, as discussed above. Total allowances issued for 2009-2011 would equal the sum of LSE baselines. The baseline would decline beginning in 2012. The state would initially allocate 95 percent of the baseline each year to the LSEs for free, subject to set asides discussed below.

Up to one percent of IOU allowances for 2009 though 2020 could be reallocated based upon each IOU's share of avoided CO2 emissions derived from energy efficiency investments made during the period of 1991 through 2001 The methodology would consider energy efficiency investments by both customer class and average duration of benefit, multiplied by the IOU's avoided CO2 emission rate.

The process would be triggered by an IOU application based on a comparison of its avoided CO_2 per MWh of sales for the period 1991 through 2001 relative to other IOUs. ODOE would conduct a public process that would allow participation by other IOUs and interested parties. The process should be complete before the initial awarding of allowances. Any portion of this pool of allowances that is not awarded would revert to the IOU pool of allowances.

Allowance Auctions. The state would auction a minimum of 5 percent of the total allowances each year, divided between two auctions a year. ODOE could increase the percentage of auctioned allowances by rule to up to a total of 10 percent by petition of a covered entity that there is substantial cause to increase the percentage[2].

Only covered entities or joint operating agencies of COUs could participate in the auction. The auction would set one final price for all allowances in that auction. COUs, ESSs and self-generators would have first-in-line access to allowances for each auction. Giving smaller entities first-in-line recognizes that they might have a harder time competing for allowances in an auction. Because these entities' needs are small, having them go first does not significantly disadvantage the large LSEs. Also, because of consumer-owned utilities' dependence on the Bonneville Power Administration (BPA) and the nature of their contracts with BPA, they are less able to make system changes and would more likely need to purchase auctioned allowances. The amount needed by specific LSEs for "first-in-line" allowances would be determined by rule. IOUs would have access to the remainder of allowances at the same price.

[2] Some LSEs may see significant changes from their baseline conditions or experience may show that 5 percent is not adequate for liquidity.

Use of Auction Revenues. The funds that would be generated by the auction would be earmarked for:

- Energy efficiency,
- Renewable generation;
- Costs of improved efficiency at fossil-fuel power plants owned by Oregon LSEs that are in excess of the value of fuel savings, increased capacity and other economic benefits; and
- Offsets.

ODOE would have option to direct up to 25 percent of the funds to support broad programs that would achieve CO_2 reductions in state, but not necessarily directed at a particular LSE, e.g. market transformation. There could different treatment for the portion of auction revenues that would have flowed back to self-generators and ESSs, but that process would be developed by rule.

Funds other than those reserved for broad programs would be distributed proportionately to LSEs or joint operating agencies (for COUs) per base-period emissions. The 25 percent of funds for statewide programs could go to a non-governmental organization or be distributed through an RFP. Either way, there would be a requirement that the funds be spent on programs that would reduce emissions from LSEs.

Multi-year Compliance Periods. The state would issue allowances, either free or auctioned, each year. However, in order to provide flexibility and to smooth out the effects of unusual circumstances, the LSEs would only have to surrender allowances to comply with their limit every three years. In effect, they could average their emissions over the three-year period. The compliance periods would be: 1) 2009-2011; 2) 2012-2014; 3) 2015-1017; and, 4) 2018-2020.

For the first three years the total number of allowances would be equal to the initial state cap. Starting in year four, the total number of allowances would begin to decline so that the total emissions from the electricity sector would be 10 percent below 1990 levels by 2020. Each LSE would face a proportional decline in the number of free allowances it received. The number of auctioned allowances would decline in the same manner. The cap would be reduced on a predictable curve through 2050 to achieve the greenhouse gas emissions reduction goals the Governor has set.

Legislation would allow LSEs to petition ODOE to approve different reduction schedule as long as the cumulative reductions are greater than those under the standard rate of decline of cap and cumulative reductions were not delayed beyond the next compliance period.

The LSE would be required to surrender allowances (or offsets, as described below) to the state to cover its share of emissions from all generation sources serving its customers during each compliance period. Emissions calculations would make no distinction on the location for owned power plants or between owned plants and wholesale contracts from specific power plants. Emissions from in-state and out-of-state plants would be treated the same. The emission rate for net market purchases (not related to specific plants) would be set by rule in a manner similar to the net system mix under OPUC rule 860-038-300.

Banking Allowances. An LSE could save, or "bank," allowances that it did not need to meet its requirements in one compliance period and use them to meet its requirements in a subsequent compliance period. If an LSE had banked allowances from a previous compliance period, it would have to surrender those allowances first in the next compliance period. The state would publish data on the number of banked allowances that each LSE held.

Each LSE would provide an annual progress report on its emissions and the number of allowances it holds. No less than every three years, each LSE would provide a forecast of its emissions and the way it intends to reduce emissions or purchases of allowances or offsets to ODOE.

Borrowing Allowances. An LSE could not "borrow" allowances from its future allocation.

Trading and Sale of Allowances. An LSE could sell allowances it did not need to other Oregon LSEs. Trading would be allowed only among Oregon LSEs unless the Governor directs the ODOE to initiate a rulemaking to permit trading with other state-based CO_2 cap systems. Oregon LSE's would be allowed to buy allowances issued by other states and sell allowance to entities covered by another state's CO_2 cap only if the rulemaking determined that the other state's CO_2 cap-and-trade system is consistent and comparable with the Oregon cap-and-trade system.

An LSE could also retire allowances on behalf of its retail customers. An LSE could not sell "future" allowances, ones that the state had not yet issued, however.

Adjusting Allocations. There would be provisions for adjusting the baseline and the allowance allocation if a major customer shifted its load to another LSE or a self-generating LSE moved its load on or off a utility. For load shifts, allocated allowances would transfer with shifts in load between two LSEs at the allowance rate (tonnes of CO_2 per MWh) of the LSE that initially lost load.

Hydro Adjustment. There would be a provision for a hydro adjustment. The hydro adjustment would extend the compliance period by one year for each year of "exceptionally bad hydro generation." A single year extension would allow averaging of emissions over four years instead of three. The parameters of "exceptionally bad hydro generation" would be defined by rule. Use of the hydro adjustment would not change the declines in the baselines and the overall state cap.

New Entrants. For new entrants, such as new self-generators who had not been served by an LSE before and new large single loads of LSEs, the state would hold an allowance set-aside during each year. At the end of each year, the state would pro-rate the unused allowances to the covered entities and the second semi-annual auction. The state would set the sizes of the allowance pool and new large single loads in rule. The pool would not to exceed 3 percent of total number of allowances to be issued in that year.

Alternative Compliance Payments. If an LSE failed to surrender sufficient allowances (and offsets) to meet its requirements, there would pay a fee to the state of $40 per tonne of CO_2 in excess (2006$). This would be an “alternative compliance payment” (ACP).

ACP funds would go into an escrow account for each LSE. Each LSE would have up to the end of the following compliance period to demonstrate to ODOE that it has an effective plan for reducing emissions and has committed funds to implement that plan. If ODOE approved the plan, the LSE would expend the escrow funds. If funds remain in the escrow account at the end of the following compliance period, ODOE would distribute the funds to a third-party to use them with requirement that they be spent on emissions reductions on behalf of LSEs generally and, to the extent practicable, on emissions reductions for the specific LSE.

Circuit Breaker. There would be a “circuit breaker” that allow LSEs to exceed the cap for one year. If the total number of ACPs purchased by all capped entities exceeds (a) the total state CO_2 allowances normally issued during the compliance period plus (b) all banked allowances carried into the period by more than 10 percent in any one compliance period, the state would issue allowances in the next year equal to the allowances it issued in the last year of the compliance period in which the circuit breaker was triggered. Allowances issued in subsequent years would be unchanged from the original path. There would not be a corresponding accelerator if the program were achieving reductions faster or at less cost than expected.

Offsets. In addition to surrendering state-issued allowances to meet emission requirements, an LSE could surrender a limited number of offsets of greenhouse gases (GHGs). Legislation would require a rulemaking to assure that all GHG offsets are real, quantifiable, verified, additional, permanent, and enforceable. Offsets are credits for reductions from outside the electrical sector or other regulated sectors. Legislation would limit offsets in 2009, 2010 and 2011 to a percent-of-the-cap rate that if applied to the 2009-2020 period would yield 25 percent of the required reductions from the base-period emissions. For example, if the base-period emissions were 24 MMT of CO_2, the offsets in 2009-2011 could not exceed 2.6 percent of each LSE’s cap. The 2009-2011 percent-of-the-cap rate would be reduced by 10 percent for each succeeding period (2012-14, 2015-2017 and 2018-2020), and remain at the 2018-2020 rate thereafter. In lieu of a percentage limit on offsets, COUs would have the option to use offsets to meet all the required reductions from their base-period emissions that come from the Bonneville Power Administration power mix. Self-generators would also have the option to use offsets to meet all of their reductions.

ODOE would define by rule eligibility for offsets as to additionality, type, source, vintage and permanence. Offsets would be allowed from CO_2, methane (CH_4), nitrous oxide (N_2O), perfluorocarbons (PFCs), sulfur hexafluoride (SF_6), and hydrofluorocarbons (HFCs), based on global warming potential as expressed as CO_2–equivalent. ODOE would establish protocols to quantify, verify and retire those offsets. The state would set and collect an administrative fee for establishing and implementing a program that permits covered entities to surrender offsets for compliance with the cap.

Renewable Portfolio Standard (RPS). The governor has proposed an RPS that would require 25 percent of Oregon's electricity to come from new renewable resources by 2025. The Renewable Energy Working Group is refining the proposal. Under both an RPS and the proposed accounting system for the CO_2 cap, on-system (bundled) renewables would count as compliance for both systems. A bundled renewable MWh would count toward the RPS percent-of-generation standard and as a zero or very low source of CO_2 emissions for an LSE.

The emissions rate of each MWh of allowed unbundled renewable energy certificates (RECs) would substituted for the emissions of a MWh of LSE power. The emission rate for renewable power is either zero or very low. The unbundled RECs would be first substituted for the LSE's unspecified market purchases. If the LSE has fewer MWhs of unspecified market purchases than unbundled RECs, the REC emission rate for the remaining RECs would be substituted for the system average emission rate for that LSE.

Unbundled RECs can be counted for CO_2 compliance up to a limit. The limit for each LSE in 2009, 2010 and 2011 would be a rate as a percent of its CO_2 cap that if applied to the 2009-2020 period would yield 10 percent of the required reductions from the base-period emissions. For example, if the base-period emissions were 24 MMT of CO_2, the limit would be about one percent of each LSE's cap in 2009-2011. The 2009-2011 percent-of-the-cap rate for unbundled RECs for each LSE would be reduced by 10 percent for each succeeding period (2012-14, 2015-2017 and 2018-2020), and remain at the 2018-2020 rate thereafter.

There would be no limit on the use of unbundled RECs as applied to unspecified market purchases by COUs. A COU could substitute the emissions of unbundled RECs for the emissions of unspecified BPA market purchases that are part of that COU's mix.

Administration of the Cap and Funding for Its Implementation. The Oregon Department of Energy (ODOE) would be the CO_2 regulatory agency that would adopt rules and administrative procedures. The ODOE would collect a small administrative fee per allowance it issues to cover the cost of administering the program.

Administrative Review. During each compliance period, the Department of Energy would conduct a public review of the operation of the carbon cap and report to the governor and legislature.

Oregon Public Utility Commission (OPUC). The statute would require OPUC to consider the IOUs' requirements to comply with the CO_2 cap in its rate-making decisions and integrated resource plan acknowledgments, including the prudency of IOU actions to comply with the cap.

Stationary Fossil Fuels and Industrial Process CO_2 Emissions
The load-based cap on electricity would not cover CO_2 emissions from stationary sources of fossil fuels (e.g. direct use of natural gas, propane, oil and coal). Stationary sources represent about 20 percent of total Oregon CO_2 emissions: industrial fuel is 12 percent; residential fuel is 5 percent; and commercial fuel is 3 percent. There are also some direct CO_2 emissions from industrial processes, such as from manufacturing cement, in the 20 percent from stationary sources. Also, emissions from self-generators below the threshold are not covered under the cap. For comparison, emissions from electricity use are 42 percent of Oregon's total emissions and the transportation sector is about 38 percent.

Rather than capping emissions from stationary sources, the proposal is to apply a charge, called a "Carbon Dioxide Reduction Charge" (CDRC), to stationary emitters. It would not apply to transportation emissions. The rate and the administration would be different for smaller natural gas users, smaller petroleum users and other stationary emitters. The CDRC would begin at the same time as electric emissions are capped.

a) For residential and commercial natural gas customers**,** the OPUC would set a Carbon Dioxide Reduction Charge (CDRC) at between 1 and 3 percent of retail revenue. The use of these funds would include energy efficiency activities currently covered by voluntary public purpose charges. The other eligible activities would be energy efficiency measures that would not be cost-effective absent consideration of CO_2 emissions and on-system measures to reduce greenhouse gas emissions. On-system greenhouse gas reductions would include measures on the gas utility's system and on interstate pipelines, natural gas wells and processing and storage facilities serving the utility. On-system reductions would include the costs of production and distribution of bio-gas that exceed the wholesale market price of natural gas. The cost of all incentives, net of the wholesale value of the saved fuel, should not exceed $25 per tonne of CO_2. OPUC could direct CDRC funds to the utility or to a non-governmental organization or organizations.

b) For residential and commercial stationary petroleum users, ODOE would set a CDRC at a level between 1 and 3 percent of retail revenue of non-transportation petroleum sales. These funds could be collected by an assessment on wholesale revenues. These funds would be used for oil energy efficiency activities, such as currently covered under the State Home Oil Weatherization program and additional activities. The cost of all energy efficiency incentives, net of the wholesale value of the saved fuel, should not exceed $25 per tonne of CO_2. ODOE could administer the program or contract for administration with a non-governmental organization.

   On-system measures to reduce greenhouse gas emissions by Oregon petroleum suppliers or pipelines in Oregon would also be eligible for CDRC funding. On-system measures would include the costs of production and distribution of bio-diesel that exceed of the wholesale market price of diesel.

c) All other stationary sources of CO_2 would also pay a CDRC. This would include the larger sources not covered in (a) or (b) above or by the electric cap and trade system. ODOE would set a CDRC that would collect between 1 and 3 percent of retail fossil-fuel revenues from this group. The charge would applied as a uniform charge per pound of CO_2 emitted. The CDRC would not be applied to fossil fuel used for electric generation, except that self-generation not covered under (a) or (b) above or the load-based CO_2 cap would pay the CDRC. Non-fossil-fuel CO_2 emissions from lime and cement manufacturing would also pay the CDRC.

Sites with emission of more than 5,000 tonnes of CO_2 per year could self-direct their funds and could use funds for capital expenditures to switch to lower CO_2 fossil fuels or renewable fuels or other measures to reduce on-site greenhouse gas emissions.

Based on 2003 industrial fossil-fuel expenditures, the CDRC for other stationary sources would be between $7 and $23 million per year. This would be from $1 and $4 per tonne of CO_2 emitted.

The cost of all energy efficiency incentives, net of the wholesale value of the saved fuel, should not exceed $25 per tonne of CO_2. ODOE could administer the program or contract for administration with a non-governmental organization.

The CATF recommends that the Governor instruct ODOE to form a task force of interested parties and conduct studies on alternative systems to reduce CO_2 from other stationary CO_2 emitters.

Other Issues:

Caps on Other Greenhouse Gases. The CATF also recommends the Governor establish a task force to propose legislation by 2009 on other greenhouse gasses to be capped or other regulations or incentives to reduce emissions of CH_4, N_2O, PFCs, SF_6, and HFCs. This task force could also consider whether to establish a cap-and trade system for large CO_2 stationary emitters, as an alternative paying the CDRC, as discussed above. ODOE would staff the task force.

Future Federal Greenhouse Gas Regulations. If there were not preemption by federal statute, when there is federal action that requires or results in absolute, mandatory reductions in the same greenhouse gas emissions capped by Oregon, including indirectly with rules targeting up-stream fuel supplies, ODOE would conduct a review of the impact of the federal action (including rules for implementing federal statutes) and would prepare a proposal for legislative changes, if warranted. There would be no delegated authority to pause the cap just because there was federal action.

Cooperation with Other States and Countries.

Prior to each biennial legislative session, the Department of Energy would conduct a public review of the performance of Oregon's carbon reduction system, compare Oregon's system with other existing and planned systems in the U.S. and make legislative recommendations.

ODOE would report to the governor and legislature when there are opportunities to cooperate in a mutually beneficial manner with other states or nations that have adopted mandatory reduction of greenhouse gas emissions, including trading of allowances.

There is additional information about the Carbon Allocation Task Force at http://egov.oregon.gov/ENERGY/GBLWRM/CATF.shtml